

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/939,258	08/24/2001	James M. Derderian	4831US (01-0105)	2185
24247	7590	04/23/2004	EXAMINER	
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SALT LAKE CITY, UT 84110			PAPER NUMBER	
			2827	

DATE MAILED: 04/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 02 February 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) 9, 24 and 29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-23, 25-28 and 30-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413)

Claims 9, 24 and 29 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the paper filed on 2-2-4.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 30 is rejected under 35 U.S.C. § 112, first and second paragraphs, as the claimed invention is not described in such full, clear, concise and exact terms as to enable any person skilled in the art to make and use the same, and for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The unenabled and indefinite claim language is the entire claim recitation.

Claim 30 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the

claimed invention. The undescribed subject matter of the claimed invention is the entire claim recitation.

To determine adequacy of written description for original claims MPEP 2163IIA2(a) (redacted) instructs:

(i) For Each Claim Drawn to a Single Embodiment Or Species:

(A) Determine whether the application describes an actual reduction to practice of the claimed invention.

(B) If the application does not describe an actual reduction to practice, determine whether the invention is complete as evidenced by a reduction to drawings or structural chemical formulas that are sufficiently detailed to show that applicant was in possession of the claimed invention as a whole.

(C) If the application does not describe an actual reduction to practice or reduction to drawings or structural chemical formula as discussed above, determine whether the invention has been set forth in terms of distinguishing identifying characteristics as evidenced by other descriptions of the invention that are sufficiently detailed to show that applicant was in possession of the claimed invention.

(1) Determine whether the application as filed describes the complete structure (or acts of a process) of the claimed invention as a whole.

(2) If the application as filed does not disclose the complete structure (or acts of a process) of the claimed invention as a whole, determine whether the specification discloses other relevant identifying characteristics sufficient to describe the claimed invention in such full, clear, concise, and exact terms that a skilled artisan would recognize applicant was in possession of the claimed invention. Any claim to a species that does not meet the test described under at least one of (a), (b), or (c) must be rejected as lacking adequate written description under 35 U.S.C. 112, para. 1.

ii) For each claim drawn to a genus:

The written description requirement for a claimed genus may be satisfied through sufficient description of a representative number of species by actual reduction to practice (see i)(A), above), reduction to drawings (see i)(B), above), or by disclosure of relevant, identifying characteristics, i.e., structure or other physical and/or chemical properties, by functional characteristics coupled with a known or disclosed correlation between function and structure, or by a combination of such identifying characteristics, sufficient to show the applicant was in possession of the claimed genus (see i)(C), above).

Regarding any species limitation of claim 30, the instant application does not describe an actual reduction to practice of the claimed invention; the invention is not complete as evidenced by a reduction to drawings or structural chemical formulas that are sufficiently detailed to show that applicant was in possession of the claimed invention as a whole; the

invention has not been set forth in terms of distinguishing identifying characteristics as evidenced by other descriptions of the invention that are sufficiently detailed to show that applicant was in possession of the claimed invention; the application as filed does not describe the complete structure of the claimed invention as a whole; and the specification does not disclose other relevant identifying characteristics sufficient to describe the claimed invention in such full, clear, concise, and exact terms that a skilled artisan would recognize applicant was in possession of the claimed invention.

Regarding any generic limitation of claim 30, there is insufficient original description of a representative number of species by actual reduction to practice, reduction to drawings, or by disclosure of relevant, identifying characteristics, i.e., structure or other physical and/or chemical properties, by functional characteristics coupled with a known or disclosed correlation between function and structure, or by a combination of such identifying characteristics, sufficient to show the applicant was in possession of the claimed genus/genera.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for

States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-8, 10, 12-23, 27, 28 and 30-35 are rejected under 35

U.S.C. 102(e) as being anticipated by Pu (6593662).

At column 3, line 66 to column 4, line 52; and column 8, line 49, Pu discloses the following:

A semiconductor device assembly, comprising: at least one semiconductor device 206; and a plurality of mutually laterally spaced discrete spacers 220 protruding from a surface of said at least one semiconductor device, said spacers defining a distance said surface of said at least one semiconductor device is to be spaced apart from another semiconductor device 208 to be positioned in superimposed relation with said at least one semiconductor device; wherein at least one of said spacers is resiliently compressible; wherein at least one of said spacers protrudes from an active surface of said at least one semiconductor device; wherein each of said spacers protrudes from said active surface of said at least one semiconductor device; wherein said plurality of spacers are arranged to stably support said another semiconductor device; said another semiconductor device positioned adjacent said spacers, opposite from said at least one semiconductor device; adhesive material 214 between said at least

said adhesive material is located between adjacent spacers; wherein said spacers comprise electrically conductive material.; a substrate 202 with which at least one semiconductor device is associated; wherein said substrate comprises at least one of a circuit board, an interposer, a semiconductor device, and leads; wherein at least one bond pad 222 of said at least one semiconductor device is in communication with a corresponding contact area (area in contact with 210a and 210b) of said substrate; at least one discrete conductive element 210a extending from said at least one bond pad, over an active surface of said at least one semiconductor device, to said corresponding contact area; wherein heights of said spacers exceed a maximum height said at least one discrete conductive element protrudes above said active surface; wherein said spacers are secured to noncircuit bond pads 204b of said at least one semiconductor device.

A semiconductor device assembly, comprising: a substrate; a first semiconductor device associated with said substrate, bond pads of said first semiconductor device in communication with corresponding contact areas of said substrate, mutually laterally spaced discrete spacers positioned on and protruding from an active surface of said first semiconductor device; and a second semiconductor device comprising a back side positioned on said mutually laterally spaced discrete spacers; wherein said substrate comprises one of a circuit board, an interposer, another semiconductor device, and

leads; wherein said bond pads and said corresponding contact areas communicate by way of discrete conductive elements positioned therebetween; wherein said discrete conductive elements comprise at least one of bond wires, tape-automated bond elements, and thermocompression bonded leads; wherein said mutually laterally spaced discrete spacers are secured to noncircuit bond pads of said first semiconductor device; wherein said mutually laterally spaced discrete spacers comprise conductive material; wherein heights of said mutually laterally spaced discrete spacers exceed a maximum height said discrete conductive elements protrude above said active surface; wherein at least one of said mutually laterally spaced discrete spacers is inherently compressible; wherein bond pads 222 of said second semiconductor device communicate with said corresponding contact areas of said substrate by way of discrete conductive elements 210b positioned therebetween; an adhesive layer between said first semiconductor device and said second semiconductor device; wherein at least some of said mutually laterally spaced discrete spacers extend through said adhesive layer; at least one additional semiconductor device 206 positioned over said second semiconductor device; an encapsulant material 214 substantially covering said first semiconductor device, said second semiconductor device, discrete conductive elements, and portions of said substrate located adjacent to said first semiconductor device; at least one



external connective element 212 carried by said substrate and in electrical communication with at least one corresponding contact area of said substrate.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11, 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pu as applied to claims 1-8, 10, 12-23, 27, 28 and 30-35, and further in combination with Ference (6265771).

Pu does not appear to explicitly disclose wherein said spacers communicate with a ground plane of said at least one semiconductor device; wherein said mutually laterally spaced discrete spacers are in communication with a ground or reference voltage plane of said first semiconductor device; wherein said back side of said second semiconductor device is also in communication with said ground or reference voltage plane.

Nonetheless, at column 3, lines 3-9 and 15-17; and column 4, lines 28-42 and 53-55, Ference discloses wherein said spacers 18 communicate with a ground plane of said at least one semiconductor device 12; wherein said mutually laterally spaced discrete spacers are in communication with a

ground or reference voltage plane of said first semiconductor device; wherein said back side of said second semiconductor device 16 is also in communication with said ground or reference voltage plane. Furthermore, it would have been obvious to combine this product of Ference with the product of Pu because it would facilitate noise reduction and thermal transfer.

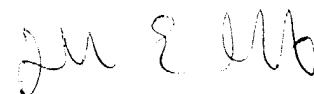
The art made of record and not applied to the rejection is considered pertinent to applicant's disclosure. It is cited primarily to show inventions similar to the instant invention.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**Any telephone inquiry of a general nature or relating to the status (MPEP 203.08) of this application or proceeding should be directed to Group 2800 Customer Service whose telephone number is 571-272-2815.**

Any telephone inquiry concerning this communication or earlier communications from the examiner should be directed to David E. Graybill at (571) 272-1930. Regular office hours: Monday through Friday, 8:30 a.m. to 6:00 p.m.

The fax phone number for group 2800 is (703) 872-9306.



David E. Graybill  
Primary Examiner

D.G.  
17-Apr-04